# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/050,439 | 01/16/2002 | Werner van Hoof | X2/JEC/47123/134050 | 6495 |

| 35114 7590 09/08/2004 | EXAMINER |
|---|---|
| ALCATEL INTERNETWORKING, INC. | ABELSON, RONALD B |

| | ART UNIT | PAPER NUMBER |
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| ALCATEL-INTELLECTUAL PROPERTY DEPARTMENT 3400 W. PLANO PARKWAY, MS LEGL2 PLANO, TX 75075 | 2666 | |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☒ Responsive to communication(s) filed on _16 January 2002_.

2a)☐ This action is **FINAL**.     2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) _1-37_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4,6-9,11-16,18,20-27,29,30,32,33,35 and 37_ is/are rejected.

7)☒ Claim(s) _5,10,17,19,28,31,34 and 36_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _16 January 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _2,3_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

## *Specification*

1.    The disclosure is objected to because of the following

informalities: On page 1 lines 3-4, an attorney docket number is

referenced.

Appropriate correction is required.

## *Claim Rejections - 35 USC § 103*

2.    The following is a quotation of 35 U.S.C. 103(a) which

forms the basis for all obviousness rejections set forth in this

Office action:

> (a) A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the
> differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the
> art to which said subject matter pertains.  Patentability shall not be
> negatived by the manner in which the invention was made.

3.    Claims 1, 3, 6, 13, 15, 22-24, 26, 29, 30, 33, and 37

rejected under 35 U.S.C. 103(a) as being unpatentable over

Bremer (US 6,032,190) in view of Isoyama (US 6,049,527).

Regarding claims 1, 13, 22-24, 30, 33, and 37, Bremer

teaches a data switch (fig. 2 box 38) comprising an input port

(fig. 2 ports 37), an output port (fig 2 ports 36) and memory

coupled therebetween (fig. 3 box 48, 50, col. 5 line 30). The

switch segments the packet into ones of units (col. 4 lines 51-

57). Note, when the switch performs an Ethernet to ATM packet

conversion the switch "segments the packet into ones of units"

since Ethernet is a variable length frame and ATM is fixed

length.

Regarding claims 1, 22-24, 30, and 37, Bremer is silent on

the data switch generates a discard processing indicator for a

packet received on the input port, appends the discard

processing indicator to the ones of units, and compares the

discard processing indicator appended to the ones of units with

a discard criterion to determine whether to discard the ones of

units; as specified in claims 1, 22-24, 30, and 37.

Isoyama teaches generating a discard processing indicator

for a packet received on the input port (fig. 1 box 11a, 11b,

col. 3 lines 12-16), appending the discard processing indicator

to the ones of units (fig. 1 box 11a, 11b, col. 3 lines 12-16,

fig. 3 cells $36_{e-h}$ , col. 3 lines 46-52), and comparing the

discard processing indicator appended to the ones of units with

a discard criterion / overflow of the cell buffer to determine

whether to discard the ones of units (fig. 3 box 14, col. 3

lines 46-52); as specified in claims 1, 13, 22-24, 30, 33, and

37.

Regarding claims 13 and 33, Bremer is silent on the packet indicator being assigned to the packets being a number.

Regarding claims 13 and 33, Isoyama teaches the packet indicator being assigned to the packets being a number (col. 3 lines 23-28).

Therefore it would have been obvious to one of ordinary skill in the art, having both Bremer and Isoyama before him/her and with the teachings [a] as shown by Bremer, a data switch for performing conversion between variable length and fixed length packets, and [b] as shown by Isoyama, generating a discard processing indicator for a packet received on the input port, appending the discard processing indicator to the ones of units, comparing the discard processing indicator appended to the ones of units with a discard criterion / overflow of the cell buffer to determine whether to discard the ones of units, and the packet indicator being assigned to the packets being a number, to be motivated to modify the system of Bremer by having the data switch perform packet discarding according to the teachings of Isoyama. These modifications can be performed in software. This would improve the system by helping to prevent buffer overflow.

4.    Claims 3, 15, and 26 are rejected under 35 U.S.C. 103(a) as
being unpatentable over the combination of Bremer and Isoyama as
applied to claims 1, 13, and 23 above, and further in view of
Isoyama.

Regarding claims 3, 15, and 26, although Bremer teaches the
switch has memory, the reference is silent on the data switch
stores the ones of units in memory if the units are determined
not to be discarded.

Regarding claims 3, 15, and 26, Isoyama teaches the data
switch stores the ones of units in memory if the units are
determined not to be discarded (fig. 1 box 12, col. 3 lines 36-
37). Note, all packets with a packet identifier are stored in
memory.

Therefore it would have been obvious to one of ordinary
skill in the art, having both the combination of Bremer and
Isoyama and Isoyama before him/her and with the teachings [a] as
shown by the combination of Bremer and Isoyama, a data switch
for performing conversion between variable length and fixed
length packets, and [b] as shown by Isoyama, the data switch
stores the ones of units in memory if the units are determined
not to be discarded, to be motivated to modify the system of the
combination of Bremer and Isoyama by queuing packets that are

deemed not to be discarded. This would improve the system by

ensuring that the packets are not dropped in the case where they

cannot be processed immediately.


Regarding claims 6, 29, the ones of units are fixed length

(Bremer: fig. 2 ATM).


5.    Claims 7-9, 12, 18, 21, 32, and 35 are rejected under 35

U.S.C. 103(a) as being unpatentable over Bremer, in view of

Isoyama, and further in view of Lyon (US 6,721,273).

Regarding claims 7, 18, 32, and 35, Bremer teaches a data

switch (fig. 2 box 38).

Bremer teaches an input port (fig. 2 ports 37) and input

units segmented from an input data packet (col. 4 lines 51-57).

Note, when the switch performs an Ethernet to ATM packet

conversion the switch "segments the packet into ones of input

units" since Ethernet is a variable length frame and ATM is

fixed length.

Bremer teaches an output port (fig 2 ports 36) including

one or more output queues, each output queue storing an output

unit (fig. 3 box 48, 50, col. 5 line 30) and a switch fabric

(fig. 2 box 38) operative between the input port and output

port.

Regarding claims 7, 18, 32, and 35, although Bremer teaches an input port, the reference is silent on the input port generating a tag including a discard processing indicator for appending to ones of input units segmented from an input data packet.

Regarding claims 7, 18, 32, and 35, Isoyama teaches the input port generating a tag including a discard processing indicator for appending to ones of input units segmented from an input data packet (fig. 1 box 11a, 11b, col. 3 lines 12-16, fig. 3 cells 36$_{e-h}$, col. 3 lines 46-52).

Therefore it would have been obvious to one of ordinary skill in the art, having both Bremer and Isoyama before him/her and with the teachings [a] as shown by Bremer, a data switch for performing conversion between variable length and fixed length packets, and [b] as shown by Isoyama, an input port generating a tag including a discard processing indicator for appending to ones of input units segmented from an input data packet, to be motivated to modify the system of Bremer by having the data switch perform packet discarding according to the teachings of Isoyama. This modification can be performed in software. This would improve the system by helping to prevent buffer overflow.

Regarding claims 7, 18, 32, and 35, the combination of

Bremer and Isoyama is silent on the switch fabric including a

congestion controller retrieving a level of utilization of an

output queue to which a particular input unit is destined and

selecting the input unit for discard or not based on the discard

processing indicator in the tag appended to the input unit.

Regarding claims 7, 18, 32, and 35, Lyon teaches the switch

fabric (fig. 1) including a congestion controller (fig. 1 box

100, col. 8 lines 22-26) retrieving a level of utilization of an

output queue (fig. 1 box $16_{a-n}$, col. 8 lines 22-26) to which a

particular input unit (fig. 1 box 20a, col. 8 lines 22-26) is

destined and selecting the input unit for discard or not (col. 8

lines 29- 34) based on the discard processing indicator in the

tag appended to the input unit (each cell has a loss priority,

discarding, col. 16 lines 27-29, 32-38). The examiner

corresponds the reference's tag appended to the input unit with

Lyon's each cell having a loss priority.

Therefore it would have been obvious to one of ordinary

skill in the art, having both the combination of Bremer and

Isoyama and Lyon before him/her and with the teachings [a] as

shown by the combination of Bremer and Isoyama, a data switch

for performing conversion between variable length and fixed

length packets, and [b] as shown by Lyon, the switch fabric

including a congestion controller retrieving a level of

utilization of an output queue to which a particular input unit

is destined, and selecting the input unit for discard or not

based on the discard processing indicator in the tag appended to

the input unit, to be motivated to modify the system of the

combination of Bremer and Isoyama by incorporating within the

switching system of the combination of Bremer and Isoyama a

traffic flow controller as taught by Lyon. This would improve

the system by helping to reduce overflow in the output buffers.


6.    Claim 8 is rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of Bremer, Isoyama, and Lyon

as applied to claim 7 above, and further in view of Isoyama.

     Regarding claim 8, Bremer is silent on the data switch

stores the ones of units in memory if the units are determined

not to be discarded.

     Regarding claim 8, Isoyama teaches the data switch stores

the ones of units in memory if the units are determined not to

be discarded (fig. 1 box 12, col. 3 lines 36-37). Note, all

packets with a packet identifier are stored in memory.

     Therefore it would have been obvious to one of ordinary

skill in the art, having both the combination of Bremer,

Isoyama, and Lyon and Isoyama before him/her and with the
teachings [a] as shown by the combination of Bremer, Isoyama,
and Lyon, a data switch for performing conversion between
variable length and fixed length packets, and [b] as shown by
Isoyama, the data switch stores the ones of units in memory if
the units are determined not to be discarded, to be motivated to
modify the system of the combination of Bremer, Isoyama, and
Lyon by queuing packets that are deemed not to be discarded.
This would improve the system by ensuring that the packets are
not dropped in the case where they cannot be processed
immediately.

7.   Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as
being unpatentable over the combination of Bremer, Isoyama, and
Lyon as applied to claims 7 and 18 above, and further in view of
Lyon.

Regarding claims 12, 21, the combination is silent on the
output port transmits to the switch fabric congestion status
updates including queue utilization levels for the one or more
output queues.

Lyon teaches the output port transmits to the switch fabric
congestion status updates including queue utilization levels for

the one or more output queues (col. 8 lines 29-38). Note, for

different congestion levels, different messages are being sent.

Therefore it would have been obvious to one of ordinary

skill in the art, having both the combination of Bremer,

Isoyama, and Lyon and Lyon before him/her and with the teachings

[a] as shown by the combination of Bremer, Isoyama, and Lyon, a

data switch for performing conversion between variable length

and fixed length packets, and [b] as shown by Lyon, the output

port transmits to the switch fabric congestion status updates

including queue utilization levels for the one or more output

queues, to be motivated to modify the system of the combination

of Bremer, Isoyama, and Lyon by having the output ports transmit

congestion status updates to the switch fabric. This

modification can be performed according to the teachings of

Lyon. This would improve the system reducing the probability of

output buffer overflow.


8.    Claim 9 is rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of Bremer, Isoyama, and Lyon

as applied to claim 7 above, and further in view of Lyon.

The combination is silent regarding the controller compares

the discard processing indicator in accordance with a discard

criterion selected in accordance with the utilization level of the output queue.

Lyon teaches the controller compares the discard processing indicator (each cell has a loss priority, discarding, col. 16 lines 27-29, 32-38) in accordance with a discard criterion selected in accordance with the utilization level of the output queue (amount of congestion at a given output port, col. 8 lines 22-34).

Therefore it would have been obvious to one of ordinary skill in the art, having both the combination of Bremer, Isoyama, and Lyon and Lyon before him/her and with the teachings [a] as shown by the combination of Bremer, Isoyama, and Lyon, a data switch for performing conversion between variable length and fixed length packets, and [b] as shown by Lyon, the controller compares the discard processing indicator in accordance with a discard criterion selected in accordance with the utilization level of the output queue, to be motivated to modify the system of the combination of Bremer, Isoyama, and Lyon having the output queues perform cell discarding according to the teachings of Lyon. This modification can be performed in software. This would improve the system by providing a proven method for optimally performing cell discarding.

9.    Claims 2, 14, and 25 are rejected under 35 U.S.C. 103(a) as
being unpatentable over the combination of Bremer and Isoyama as
applied to claims 1, 13, and 23 above, and further in view of
Leon-Garcia (WO 01/39430).

The combination is silent on the discard processing
indicator is a random number.

Leon-Garcia teaches the discard processing indicator is a
random number (RED, pg. 20 line 30 - pg. 21 line 1).

Therefore it would have been obvious to one of ordinary
skill in the art, having both the combination of Bremer and
Isoyama and Leon-Garcia before him/her and with the teachings
[a] as shown by the combination of Bremer and Isoyama, a data
switch for performing conversion between variable length and
fixed length packets, and [b] as shown by Leon-Garcia , the
discard processing indicator is a random number according to the
Random Early Detection 'RED' algorithm, to be motivated to
modify the system of the combination of Bremer and Isoyama by
using the RED algorithm to perform packet discarding. This would
improve the system since the RED algorithm is designed to
throttle the rate at which end systems send packets into a
network (pg. 3 lines 14 - 27).

10.   Claims 4, 16, and 27 are rejected under 35 U.S.C. 103(a) as
being unpatentable over the combination of Bremer and Isoyama,
as applied to claim 1, 13, and 23 above, and further in view of
Hughes (US 6,526,060).

The combination of Bremer and Isoyama is silent on the
discard criterion is dynamically selected in accordance with a
utilization level of an output queue to which the ones of units
are destined.

Hughes teaches the discard criterion (col. 5 line 66 - col.
6 line 3) is dynamically selected in accordance with the memory
resources (col. 6 lines 10-13). Note, the examiner corresponds
the applicant's output queue with the memory resources of the
reference.

Therefore it would have been obvious to one of ordinary
skill in the art, having both the combination of Bremer and
Isoyama and Hughes before him/her and with the teachings [a] as
shown by the combination of Bremer and Isoyama, a data switch
for performing conversion between variable length and fixed
length packets, and [b] as shown by Hughes, the discard
criterion is dynamically selected in accordance with the memory
resources, to be motivated to modify the system of the
combination of Bremer and Isoyama, by modifying the discard
criteria based upon the output buffer level. This modification

can be performed in software according to the teachings of
Hughes. This would improve the system in order to prevent the
possibility of congestion (Hughes: col. 6 lines 10-13).


11.    Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as
being unpatentable over the combination of Bremer, Isoyama, and
Lyon as applied to claims 7 and 18 above, and further in view of
Leon-Garcia (WO 01/39430).

The combination is silent on the discard processing
indicator is a random number.

Leon-Garcia teaches the discard processing indicator is a
random number (RED, pg. 20 line 30 - pg. 21 line 1).

Therefore it would have been obvious to one of ordinary
skill in the art, having both the combination of Bremer,
Isoyama, and Lyon and Leon-Garcia before him/her and with the
teachings [a] as shown by the combination of Bremer, Isoyama,
and Lyon, a data switch for performing conversion between
variable length and fixed length packets, and [b] as shown by
Leon-Garcia, the discard processing indicator is a random number
according to the Random Early Detection 'RED' algorithm, to be
motivated to modify the system of the combination of Bremer,
Isoyama, and Lyon by using the RED algorithm to perform packet
discarding. This would improve the system since the RED

algorithm is designed to throttle the rate at which end systems

send packets into a network (pg. 3 lines 14 - 27).


### Allowable Subject Matter

12.  Claims 5, 10, 17, 19, 28, 31, 34, and 36 objected to as

being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Regarding claims 5, 10, 17, 19, 28, 31, 34, and 36,

although Lyon teaches a timer (fig. 8 box 146, col. 9 lines 35-

37), nothing in the prior art of the record teaches or fairly

suggests the data switch appends a timestamp to the ones of

units for determining a utilization level of the output queue at

a time indicated by the timestamp, in combination with all the

limitations listed in the claim.


### Conclusion

13.  Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Ronald

Abelson whose telephone number is (571) 272-3165.  The examiner

can normally be reached on M-F.

If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Seema Rao can be

reached on (571) 272-3174.  The fax phone number for the

organization where this application or proceeding is assigned is

703-872-9306.

Information regarding the status of an application may be

obtained from the Patent Application Information Retrieval

(PAIR) system.  Status information for published applications

may be obtained from either Private PAIR or Public PAIR.  Status

information for unpublished applications is available through

Private PAIR only.  For more information about the PAIR system,

see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Ronald  Abelson
Examiner
Art Unit 2666

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9/7/04

SEEMA S. RAO        9/7/04
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600